

***Rescuing an Endangered Ecosystem:  
The Plan to Restore America's Everglades***

**COMPLETE STATEMENT OF**

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**BEFORE THE**

**SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE**

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Mr. Chairman, members of the Committee, I am Joseph Westphal, Assistant Secretary of the Army for Civil Works. Sitting with me today is Mr. Michael Davis, my Deputy Assistant Secretary for Policy and Legislation. Also, with me is Colonel Joe Miller and members of his staff from the Jacksonville District. We are pleased to be here today to present the Administration's and the Army's views on an important national issue – the restoration of America's Everglades.

An American treasure is in trouble. Once the Florida Everglades was a vibrant, free-flowing river of grass that provided clean water from Lake Okeechobee to Florida Bay. It was a haven for storks, alligators, panthers and other wildlife and was critical to the health of estuaries and coral reefs. Today this extraordinary ecosystem--unlike any other in the world--is dying.

Over the past half-century, as the population of south Florida has grown, the health and size of the Everglades have steadily declined. Fully half the Everglades have been lost to agriculture and development. And the surviving remnants suffer from a severe shortage of clean, reliable water. In our efforts to guard communities against flooding and to ensure adequate water supplies for drinking and irrigation, we have diverted the natural water flows that are the essence and very lifeblood of the Everglades.

As Marjory Stoneman Douglas said in *The Everglades: River of Grass*, "There are no other Everglades in the world." Like the tropical rainforest of South America and the giant redwood forest of the west, the Everglades is a unique ecosystem. We must act now, and act aggressively, if we are to save this special place.

On July 1, 1999, the Vice President, on behalf of the Administration, and in partnership with the State of Florida, submitted to Congress a comprehensive plan to restore the South Florida ecosystem, which includes the Everglades, Lake Okeechobee,

Florida Bay, and Biscayne Bay. This Comprehensive Everglades Restoration Plan (CERP), which will be implemented over the next 25 years, will:

- **Improve the health of over 2.4 million acres of the south Florida ecosystem, including Everglades National Park;**
- **Improve the health of Lake Okeechobee;**
- **Virtually eliminate damaging freshwater releases to the estuaries;**
- **Improve water deliveries to Florida and Biscayne bays;**
- **Improve water quality; and**
- **Enhance water supply and maintain flood protection.**

The CERP, which was formally known as the “Restudy,” is the most ambitious ecosystem restoration project ever undertaken in the United States -- if not the world. Its fundamental goal is to capture most of the fresh water that now flows unused to the sea and deliver it when and where it is needed most. Eighty percent of this "new" water will be devoted to environmental restoration, reviving the ecosystem from the Kissimmee River, through Lake Okeechobee, through Everglades National Park, to the coral reefs of Florida Bay. The remaining 20 percent will benefit cities and farmers, enhancing water supplies and supporting a strong, sustainable economy for south Florida. In short, the CERP provides the necessary road map for improving the quantity, quality, timing, and distribution of the water so vital to the health of America’s Everglades and the people of south Florida.

The CERP was developed under the leadership of the U. S. Army Corps of Engineers and the South Florida Water Management District. Scores of scientists from many agencies, including the Everglades National Park, two Indian tribes, the Florida Department of Environmental Protection, and many local governments, have helped develop this plan. Extensive input has been gathered from interest groups and the general public. Twelve formal public meetings were held as well as scores of focused interest group meetings.

While the CERP reflects the best available science, we are prepared to refine our thinking as we learn more. Thus the CERP is designed to be flexible, to incorporate and respond to new information as it becomes available. Continuous monitoring and independent scientific review are key components of the CERP. Still, we cannot wait for all the answers to begin. There is too much at stake and little time to act.

## **The Problem**

The Everglades of today are not the same place that Mrs. Douglas wrote about in 1947. Millions of people have encroached upon the ecosystem that once was the domain of panthers, alligators and flocks of birds so vast that they would darken the sky. With the arrival of people came the desire to manage the water, to tame the free flowing river of grass from Lake Okeechobee to the Florida Keys.

The Central and Southern Florida Project was authorized by Congress 50 years ago to provide flood protection and fresh water to south Florida. This project accomplished its intended purpose and allowed people to more easily live on the land. It did so, however, at tremendous ecological cost to the Everglades. While the population of people has risen from 500,000 in the 1950s to more than 6 million today, the numbers of native birds and other wildlife have dwindled and some have vanished. The size of the Everglades has been reduced by half.

Over the past 100 years, excessive drainage of wetlands and changes in the natural variability of water flows have altered the Everglades wetland ecosystem on a regional scale. Today, discharges to the Everglades are often too much, or too little, and frequently at the wrong times of the year. An over-abundance or scarcity of water affects plants and wildlife accustomed to the Everglades' historic range of water flows, levels and seasons. In addition, canals and highways that criss-cross the Everglades have interrupted its historic overland sheet flow.

Water quality throughout south Florida has deteriorated over the past 50 years. More than one-half of the wetlands that act as natural filters and retention areas are gone. Some untreated urban and agricultural storm water is sent directly to natural areas and estuaries. Too much, or too little, water is often sent to estuaries. Too many nutrients are entering the Everglades, with an over-abundance of cattails a visible indicator of the consequences.

Historically, most rainwater soaked into the ground in the region's vast wetlands. As south Florida developed, the canal system built over the past 100 years worked effectively and drained water off the land very quickly. As a result, approximately 1.7 billion gallons of water per day on average is discharged to the ocean. One very significance consequence is that not enough water is available for the environment.

Under current conditions, these natural systems cannot recover their defining characteristics and they will not survive. The growing demand for a reliable and inexpensive supply of water for agriculture, industry and a burgeoning population will likely exceed the limits of readily accessible sources. As the needs of the region's natural systems are factored in, as they must be, conflicts for water among users will become even more severe. Water shortages will become more frequent and more severe unless changes to the water management system are made. The health of the ecosystem will continue to decline unless we act.

## The Comprehensive Everglades Restoration Plan

First and foremost, the goal of the CERP is to restore, protect and preserve the south Florida ecosystem. The focus of the CERP has been to restore the defining ecological features of the original Everglades and other parts of south Florida ecosystem.

Both the problems with declining ecosystem health and the solutions to Everglades restoration can be framed by four interrelated factors: ***quantity, quality, timing, and distribution of water***. The principal goal of restoration is to deliver the right amount of water, of the right quality, to the right places and at the right time. The natural environment will respond to these hydrologic improvements, and we will once again see a healthy Everglades ecosystem. The CERP consists of over 60 components that work together to accomplish this.

### ***Quantity***

Significantly less water flows through the ecosystem today compared to historical times. As noted above, ***on average, 1.7 billion gallons of water that once flowed through the ecosystem is wasted each day through discharges to the ocean or gulf*** in excess of the needs of the estuaries. The CERP will capture most of this water in surface and underground storage areas where it will be stored until it is needed. Specifically, this water will be stored in more than 217,000 acres of new reservoirs and wetlands-based treatment areas, and 300 underground aquifer storage and recovery wells. These features vastly increase the amount of water available in south Florida.

### ***Quality***

The quality of water in the south Florida ecosystem has been diminished significantly. Excess phosphorus, mercury, and other contaminants harm the region's surface water and groundwater. The water quality of the Everglades Water Conservation Areas, the coastal estuaries, Florida Bay and the Keys show similar signs of significant degradation. The CERP will improve the quality of water discharged to natural areas by first directing it to surface storage reservoirs and wetlands based stormwater treatment areas. In addition, the CERP recommended the development of a comprehensive integrated water quality plan for the region that will further improve water quality.

### ***Timing***

Alternating periods of natural flooding and drying, called hydroperiods, were vital to the Everglades ecosystem. These natural hydroperiods have been severely altered by human activities. Restoring these variations in water flows and levels is an integral part of the CERP. Specifically, the timing of water held and released into the ecosystem will be modified by the CERP so that it more closely matches natural patterns. The CERP will reduce the harmful water levels that damage Lake Okeechobee and its shoreline. Improved water deliveries to the Caloosahatchee and St. Lucie rivers will reduce damage to the estuaries caused by too much or too little fresh water. Florida and Biscayne bays will receive improved fresh water flows. In other areas, an operational plan that mimics natural rainfall patterns will enhance the timing of water sent to the Water Conservation Areas, Everglades National Park, and other wildlife management areas.

## ***Distribution***

The areal extent and movement of water through the system is the final factor in the water equation. Over 50 percent of the original Everglades have been lost to urban and agricultural development. Further, the remaining ecosystem has been separated, or compartmentalized, by canals and levees. To improve the connectivity of natural areas, and to enhance sheetflow, more than 240 miles of levees and canals will be removed within the Everglades. Most of the Miami Canal in Water Conservation Area 3 will be filled and 20 miles of the Tamiami Trail will be rebuilt with bridges and culverts, allowing water to flow more naturally into Everglades National Park. In the Big Cypress National Preserve, the levee that separates the preserve from the Everglades will be removed to restore more natural overland water flow.

In summary, the CERP will store much of the excess water that is now sent to the sea so there will be enough water to meet the needs of both ecosystem and urban and agricultural users. The CERP includes a number of features to improve the quality of water flowing to the natural environment. It will continue to provide the same level of flood protection for south Florida. The CERP is not perfect – no plan could be given the complexity of the ecosystem and the effects of past modifications. We know that we do not have all the answers and that we will have to make adjustments as we learn more. In this regard, the concept of adaptive assessment is an integral part of the CERP. In short, we will monitor, use independent peer review, public input, and make necessary adjustments as we go, utilizing the effective interagency and multi-stakeholder partnerships that allowed us to develop the CERP.

## **Why Restore the Everglades?**

Perhaps first and foremost, the Everglades are an American treasure that is in serious trouble. There is no other wetland system like the “River of Grass” in the world. As with other great natural and cultural resources, we have a responsibility to protect and restore this treasure for generations to come.

Implementing the CERP over the next 25 or so years will cost approximately \$7.8 billion. While the cost of the project is substantial, it will be spread over many years and shared equally between the Federal government and the State of Florida. More importantly, the environmental and economic costs of inaction are enormous. The Everglades will continue to die and water shortages will have real effects on Florida’s economy.

The benefits to the Nation of implementing the CERP are tremendous. The entire south Florida ecosystem, including the Everglades, will become healthy, with many of its natural characteristics restored. Urban and agricultural water users will also benefit from enhanced water supplies. Flood protection, so important to hurricane-prone south Florida, will be maintained and, in some cases, improved.

The economic benefits from implementation of the CERP are wide-ranging and are linked with the availability of clean, abundant water in the ecosystem. Not only is water the key to ecosystem restoration, it is also necessary for sustainable agricultural and urban environments. It is important for recreation, tourism and navigation. It plays a significant and obvious role in commercial and recreational fishing.

With the CERP, the distribution of plants and animals will return to more natural patterns as more pre-drainage water flows are restored. The CERP will support the return of the large nesting “rookeries” of wading birds to Everglades National Park, and the recovery of several endangered species, including the wood stork, snail kite, Cape Sable seaside sparrow, and American crocodile. We are confident that implementation of the CERP will allow us to once again witness an abundance of wildlife in the Everglades.

Lake Okeechobee, which is regionally important to fish and wildlife, will once again become a healthy lake. Both the shallow and open water areas within the lake, essential to its commercial and recreational fishery, will be greatly enhanced by improved water levels. This will mean more abundant and healthier fish populations. Water quality in the lake will also be improved significantly by reducing the pollutant loading of water flowing into the lake

The CERP will also improve fresh water deliveries to Florida and Biscayne bays and the St Lucie and Caloosahatchee estuaries. Appropriate fresh water regimes will result in substantial improvements in aquatic and semi-aquatic habitats, including, mangroves, coastal marshes, and seagrass beds. Interacting together to produce food, shelter, and breeding and nursery grounds; these coastal habitat areas will support more balanced, productive fish, shellfish, and wildlife communities.

In short, the CERP will begin to reverse, in a relatively short time, the pattern of ecological degradation that has been occurring in the natural system for many decades. If we start now, the natural wetlands system of south Florida will be healthier by the year 2010.

Like many other public works projects<sup>1</sup>, implementing the CERP is an investment in the nation's future. With this investment, we can restore this unique ecosystem and leave a proud legacy for future generations. If we do not make the investment now, we will suffer the irretrievable loss of the Everglades.

The estimated cost to implement the CERP is \$7.8 billion. It will also cost approximately \$182 million each year to operate, maintain, and monitor the CERP. Taken together over the more than 20 years needed to implement the CERP, the annual costs amount to just over \$400 million. In general, the federal government will pay half the cost and the state of Florida and the South Florida Water Management District will pay the other half.

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<sup>1</sup> What do other Major Public Investments Cost? Woodrow Wilson Bridge Replacement: \$1.8 billion; Denver Airport: \$4.2 billion; New York City Water Project: \$8.5 billion; Boston Artery and Tunnel: \$10.8 billion.

## **The Restoration Effort Begins with Authorization in the Water Resources Development Act of 2000**

In early 2000, the Administration will ask the Congress to authorize an initial package of projects that will begin implementation of the CERP. This request for authorization will be made through a proposed Water Resources Development Act of 2000. The initial authorization request will include 1) four pilot projects; 2) ten specific project features; and 3) a programmatic authority through which smaller projects can be quickly implemented. Authorization for the remaining 26 proposed projects will be requested in subsequent Water Resources Development Act proposals beginning in 2002.

**Pilot projects will address technical uncertainties.** Prior to full-scale implementation, six pilot projects, costing about \$97 million, will be built to address uncertainties with some of the features in the CERP (two of these pilot project were authorized in the Water Resources Development Act of 1999). These six projects include aquifer storage and recovery in each geographic region that the technology is proposed; in-ground reservoir technology in the lake belt region of Miami-Dade County; levee seepage management technology adjacent to Everglades National Park; and advanced wastewater treatment technology to determine the feasibility of using reuse water for ecological restoration.

**Initial set of construction features will provide immediate system-wide water quality and flow distribution benefits and use already purchased land.** Ten projects, totaling \$1.1 billion, are recommended for initial authorization. These projects were selected because they can provide system-wide water quality and flow distribution benefits to the ecosystem as well as opportunities to integrate these features with other ongoing federal and state restoration programs. For example, if authorized, we could update the ongoing Modified Water Deliveries Project to make it more consistent with the CERP by taking immediate steps to improve flow distribution through the Tamiami Trail. In addition, the South Florida Water Management District and the U.S. Department of the Interior have already purchased lands, such as the Talisman lands, for a number of CERP components. Authorization of projects that use lands already purchased will ensure that these lands are utilized for restoration as soon as possible.

**Programmatic authority will expedite implementation.** An authorization will be sought similar to the authorization received in 1996 for Everglades Ecosystem Restoration Projects (Critical Projects). These projects would “produce independent, immediate, and substantial restoration, preservation and protection benefits,” and expedite some components of the CERP. The programmatic authority would be limited to those individual components of the CERP that have a total project cost of \$70 million or less, with a maximum federal share of \$35 million per project. A total of 27 components of the CERP, with a total combined federal and non-federal cost of \$490 million, could be implemented in an efficient and expedited manner. Components such as the Arthur R. Marshall Loxahatchee National Wildlife Refuge internal canal structures, the Lake Okeechobee watershed water quality treatment facility and the Florida Keys tidal restoration project could be accomplished under this programmatic authority.

**The remainder of the CERP's features to be included in future Water Resources Development Acts.** Congress will be asked to authorize the remaining components of the CERP as more detailed planning is completed. At a cost of approximately \$6.2 billion, the 26 remaining features will undergo additional studies and analysis before authorization is sought from Congress. Many of these project components are dependent on the results of the proposed pilot projects such as aquifer storage and recovery features and the in-ground reservoirs in Miami-Dade County. Based on the implementation schedule, project reports will be submitted to Congress periodically through the year 2014.

**Implementation of the CERP provides flexibility to adapt to new information.** No plan can anticipate how a complex ecosystem will respond during restoration efforts. For example, the remaining Everglades are only one-half as large as their original size and current boundaries often do not follow natural ground elevations or habitat patterns. For these and many other reasons, the ways in which this ecosystem will respond to the recovery of more natural water patterns could include some unforeseen outcomes. The CERP anticipates such outcomes. The CERP is designed to allow project modifications that take advantage of what is learned from system responses, both expected and unexpected. Called adaptive assessment, and using a well-focused regional monitoring program, this approach will allow us to maximize environmental benefits while ensuring that restoration dollars are used wisely. The monitoring program measures how well each component of the plan accomplishes its objectives, and, this, in turn, sets up opportunities for refinement of succeeding components. Independent scientific review through a National Research Council "Science Advisory Review Panel" is an integral part of this process.

**Project Implementation Reports bridge the gap between the CERP and detailed design.** To continue project implementation, more technical information is needed. Additional plan formulation and engineering and design will be developed. Additional analysis of the impacts of the various projects on the environment, flood protection, water quality, economics and real estate will be developed as will supplemental National Environmental Policy Act documents. Evaluation of component contributions to CERP performance will also provide more information toward the overall process and provide opportunities for the overall refinement or modification to the CERP as needed. The results of these efforts will be documented in a series of Project Implementation Reports. These Project Implementation Reports are designed to bridge the gap between the conceptual level of the Comprehensive Plan and the detailed design necessary to proceed with construction.

**Public involvement key to CERP implementation.** Continued outreach and public involvement are vital to the successful implementation of the CERP. In this regard, we will engage the public and stakeholder groups fully as each feature of the plan is sited, designed, and evaluated in detail. This will play a key role in shaping the details of numerous features of the CERP.



## Conclusion

July 1, 1999, was a historic day for ecosystem restoration. An unprecedented ecosystem restoration plan was presented to Congress for authorization. The CERP represents the best available science and a solid roadmap for restoring an American treasure, the Everglades. The CERP also represents a partnership between many Federal agencies, two Indian tribes, the State of Florida, and many local governments - - all who recognize the import of this effort and the consequences of inaction. This partnership is vital to our long-term success and we must all work to ensure that it is sustained.

The CERP is also a reflection of the contemporary Army Corps of Engineers. An agency that has made environmental restoration a priority mission.

Restoration of the Everglades is a high priority for the Clinton/Gore Administration, including the Army Corps of Engineers. It is a high priority for many in Florida, including the Florida Congressional delegation. We must make it a priority for the Nation. The Everglades are America's Everglades and each of us should try to understand better the importance of saving this treasure.

The ecological and cultural significance of the Everglades is equal to the Grand Canyon, the Rocky Mountains or the Mississippi River. As responsible stewards of our natural and cultural resources, we cannot sit idly by and watch any of these disappear. The Everglades deserves the same recognition and support.

We are now at an important crossroad in our efforts to restore this internationally important ecosystem. The future of the CERP now rests with the Congress who must authorize and fund its implementation. If we act now with courage and vision to implement the CERP we will be successful and we will leave a proud Everglades legacy. If we fail to act, our legacy will be one of lost opportunities for all future generations. The world is indeed watching as we make this choice.

Mr. Chairman, that concludes our statement. For the record, we have included a copy of *Rescuing an Endangered Ecosystem: The Plan to Restore America's Everglades*. This document provides a more detailed summary of the CERP and includes important graphics that help illustrate many of the points made in this statement.

Again, it has been a pleasure to participate in this hearing and we look forward to working with you, Senator Graham, and the rest of the Committee on this important issue. Mr. Davis and I would be pleased to answer any questions you may have.